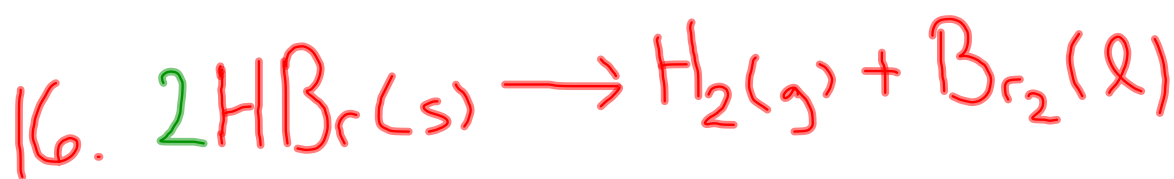
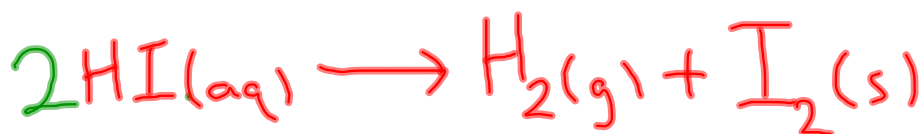
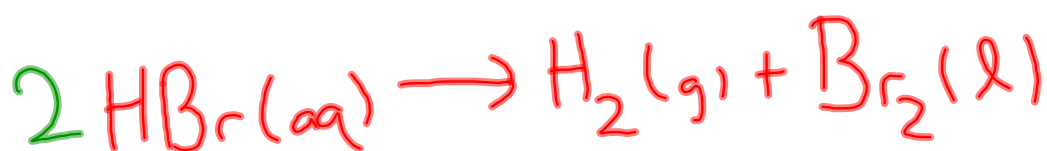




or



or



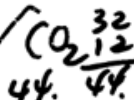
Item 111/112
nford

Worksheet-Mole

Name

$$n = \frac{m}{M}$$

$$n = \frac{\text{particles}}{6.02 \times 10^{23}}$$



a) 296 gR
 $3.0 \times 10^2 \text{ mol}$

1. Convert-Do all work in your notebook

- | | |
|--|---|
| a) 4.0 mol of $\text{Ca(OH)}_2 =$ _____ g | b) 120g of $\text{NaOH} =$ _____ moles |
| c) 1.2×10^{24} atoms of $\text{Na} =$ _____ moles | d) 132g of $\text{CO}_2 =$ _____ molecules |
| e) 10g of oxygen = _____ moles of oxygen
Molecules | f) 0.02 mol of $\text{CH}_3\text{OH} =$ _____ g |
| g) 1.0×10^{23} atoms of $\text{K} =$ _____ g | h) 0.20 mol of $\text{Cl}_2 =$ _____ molecules |

2. Complete the following:

- | | |
|--|---|
| a) 1 molecule of $\text{C}_6\text{H}_{12}\text{O}_{22}$ contains _____ O atoms | b) 1 mol of CH_4 contains _____ mol of H atoms |
| c) 5 mol of H_2O contains _____ mol of H atoms | d) 1 molecule of P_4 contains _____ P atoms |
| e) 1 mol of C_3H_8 contains _____ molecules of C_3 | f) 2 molecules of H_2O contains _____ H atoms |

3. A sealed flask contains exactly 392 g of Al(OH)_3 . Find:

- | | |
|---|------------------|
| a) mol of $\text{Al(OH)}_3 = 5.03 \text{ mol}$ | Molar mass 77.98 |
| b) mass of H present = 15.3 g | |
| c) mol of O present = 15.1 mol | |
| d) atoms of Al present = 3.03×10^{24} atoms | |
| e) total number of atoms present $5.02 \text{ mol} \times 7 \times 6.02 \times 10^{23}$ | |

4. How many atoms are there in one molecule of

- | |
|-------------------------------------|
| a) CH_3COOH 8 atoms |
| b) AlPO_4 6 atoms |
| c) SiO_2 4 atoms |

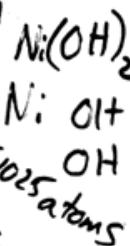
5. How many moles of atoms are there in one mole of

- | |
|--|
| a) NH_4Cl 6 mol of atoms |
| b) Ni(OH)_2 5 mol of atoms |
| c) $\text{C}_6\text{H}_{12}\text{O}_6$ 24 mol of atoms |

Al P O₄



- b) 3.00 mol
c) 1.99 or 2.0×10^{24}
d) 1.8×10^{23} molecules
e) 0.31 mol
f) 0.64 g
g) 6.49 g
h) 1.204×10^{23} molecules



Sealed Flask Calculations

* Be sure to consider the number of each type of particle.*

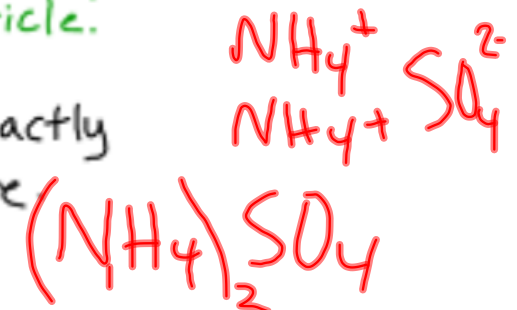
Ex:

A sealed flask contains exactly 330g of Ammonium Sulfate

Find the following:

A) mol of ammonium sulfate

$$n = \frac{330g}{132.17g/mol} = 2.50mol$$



$$\begin{array}{ll} 2 \text{ N} & 2 \times 14.01 = 28.0 \\ 8 \text{ H} & 8 \times 1.01 = 8.08 \end{array}$$

B) mol of H

$$2.50mol \times 8 \text{ H} = 20.0mol$$

$$\begin{array}{ll} 1 \text{ S} & 1 \times 32.07 = 32.07 \\ 4 \text{ O} & 4 \times 16.00 = 64.0 \end{array}$$

C) mass of O

$$2.50mol \times 4 \text{ O} \times 16.00g/mol = 160.g$$

$$\begin{array}{ll} 15 \text{ atoms} & \\ 132.17g & \end{array}$$

D) # of atoms of N

$$2.50mol \times 2 \text{ N} \times 6.02 \times 10^{23} \text{ atoms}$$

EXP 23

$$= 3.01 \times 10^{24}$$

mol

E) TOTAL # of atoms.

$$2.50mol \times 15 \text{ atoms} \times 6.02 \times 10^{23}$$

OR

$$\begin{array}{l} 2.50mol \times 2 \times 6.02 \times 10^{23} = \\ 2.50mol \times 8 \times 6.02 \times 10^{23} = \\ 2.50mol \times 1 \times 6.02 \times 10^{23} = \\ 2.50mol \times 4 \times 6.02 \times 10^{23} = \end{array}$$

$$= 2.26 \times 10^{25}$$

$$2.26 \times 10^{25}$$